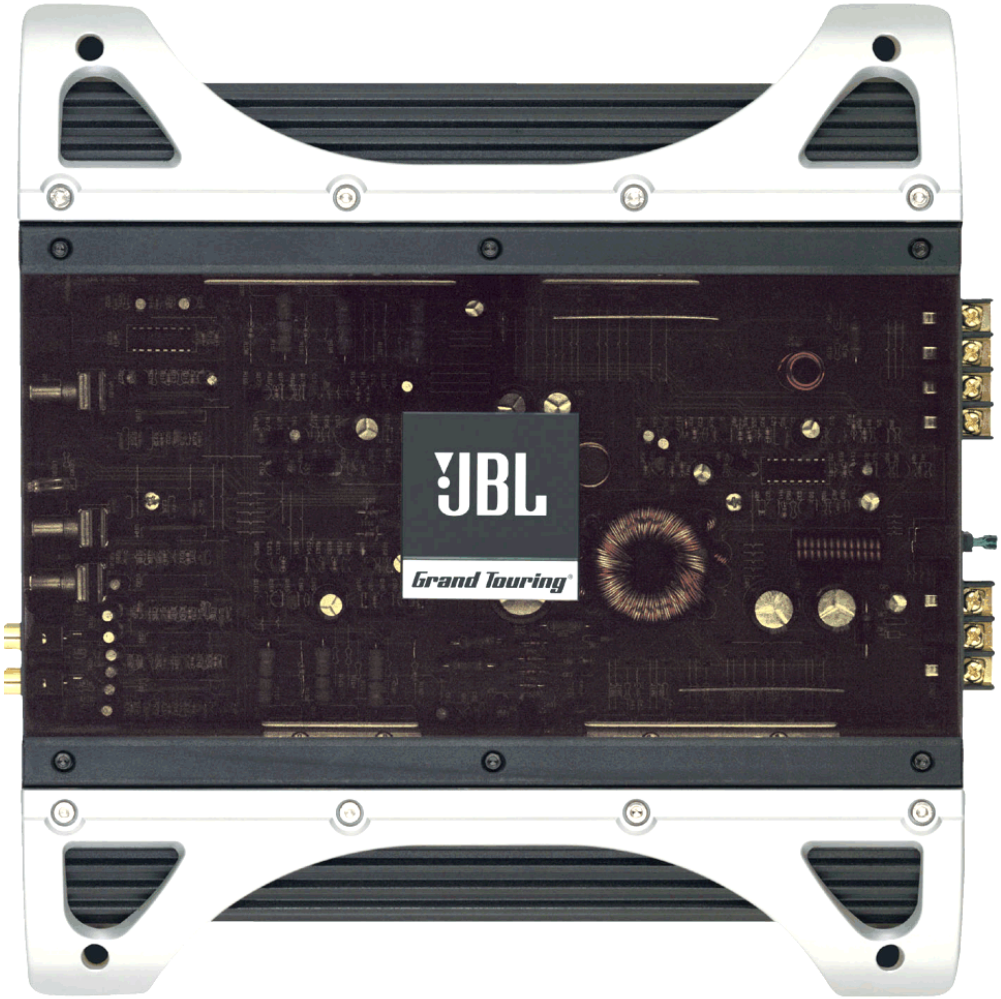
GTO Series
301.1
301.1II
1 CHANNEL POWER AMPLIFIER

SERVICE MANUAL



JBL Consumer Products
250 Crossways Park Dr.
Woodbury, New York 11797

Rev2 10/2005

- CONTENTS -

SPECIFICATIONS ……..……..1
FEATURES/TEST CONDITIONS……..……2
INSTALLATION……..……..…..…..…3
CONNECTIONS……..……..…..…..…4
SET-UP/CONTROLS ……..……..……...5
INSTALLING NEON TUBES..……..……..5
BASIC TROUBLESHOOTING..……..……6
TYPICAL SYSTEM WIRING..……..……..…7
EXPLODED VIEW/PARTS LIST……..……....8
MECHANICAL PARTS LIST..……..……....9
AMPLIFIER BLOCK DIAGRAM……..……10
P.C.B. DRAWINGS…..……11
ELECTRICAL PARTS LIST ..……..……13
VERSION II ELECTRICAL PARTS LIST ADDENDUM……16
IC/TRANSISTOR PINOUTS..……..……..17
GTO 301.1 SCHEMATICS……..……..…..……...20
GTO 301.1II SCHEMATICS……...……...22
PACKING……..……..…….....24

GTO 301.1/ GTO 301.1II Specifications

Output Power:	204W RMS x 1 channels @ 4 ohms; ≤1% THD + N
(14.4V supply)	294W RMS x 1 channels @ 2 ohms; ≤1% THD + N
Signal-to-noise ratio:	77dBA (reference 1W into 4 ohms)
Dynamic power:	320W @ 2 ohms
Effective damping factor:	6.39 @ 4 ohms
Frequency response:	10Hz – 302Hz (–3dB)
Maximum input signal:	4.7V
Maximum sensitivity:	GTO 301.1 - 220mV
	GTO 301.1II - 75mV
DC Offset	<50mV (-50%)
Output regulation:	.098dB @ 4 ohms
Idle Current	0.90A
Input Impedance	22kΩ
Max Current Draw	22A @ 4 ohms
	39A @ 2 ohms
Dimensions:	11 5/8 x 12 5/16 x 2 3/8” (L x W x D)
	(295mm x 313mm x 60mm)
Fuses:	30A

JBL continually strives to update and improve existing products, as well as create new ones. The specifications and details in this and related JBL publications are therefore subject to change without notice.

Features

- 2-Channel Operation
- Advanced MOSFET Oversized Floating Rail Power Supply
- Floating Ground Factory - Head - Unit Speaker - Level input
- Variable Input Sensitivity (250mV - 6V)
- Fully Complementary Output Stage with Class-AB Voltage Amplification
- Gold-plated Power, Input and Output Connectors
- 2-Ohm Stable (MONO)

Test Conditions and Notes

- All tests to be done, unless otherwise specified, from 10Hz to 320Hz at 14.4V DC into 2 ohm loads and adjust the units gain so that with a .250 volt input signal the unit is at its maximum rated output. All measurements will be done using an Audio precision system one and the supply voltage.

- An A+ line voltage of 14.4V DC shall be applied to the unit under test for all measurements unless otherwise specified. The voltage applied to the unit shall be measured at the power connection on the Amplifier.

- Signal Source
  Unless otherwise specified, all tests shall be conducted with the Audio Signal Generator output configured to be balanced, less than or equal to 50 ohm source impedance, and floating. The signal source "GND" shall be connected to the Amplifier PWR GND at the Amplifier.

- Output Load
  Unless otherwise specified, all tests shall be conducted with 2 ohm resistive loads having less than 10% reactive components at any frequency below 320Hz. Each resistor shall have a value that remains within 1% while dissipating the rated output of the unit under test.

- Power Indicator LED steadily illuminates for normal operation. LED blinks when protection circuitry is engaged, and during power up.

INSTALLATION

WARNING: Playing loud music in an automobile can hinder your ability to hear traffic and permanently damage your hearing. We recommend listening at low or moderate levels while driving your car. JBL accepts no liability for hearing loss, bodily injury or property damage resulting from the use or misuse of this product.

IMPORTANT: To get the best performance from your JBL Grand Touring® Series amplifiers, we strongly recommend that installation be entrusted to a qualified professional. Although these instructions explain how to install GTO amplifiers in a general sense, they do not show specific installation methods that may be required for your particular vehicle. If you do not have the necessary tools or experience, do not attempt the installation yourself. Instead, please ask your authorized JBL car audio dealer about professional installation.

INSTALLATION WARNINGS AND TIPS

- Always wear protective eyewear when using tools.
- Turn off the audio system and other electrical devices before you start. Disconnect the (–) negative lead from your vehicle's battery.
- Check clearances on both sides of a planned mounting surface before drilling any holes or installing any screws. Remember that the screws can extend behind the surface.
- At the installation sites, locate and make a note of all fuel lines, hydraulic brake lines, vacuum lines and electrical wiring. Use extreme caution when cutting or drilling in and around these areas.
- Before drilling or cutting holes, use a utility knife to remove unwanted fabric or vinyl to keep material from snagging in a drill bit.
- When routing cables, keep input-signal cables away from power cables and speaker wires.
- When making connections, make certain they are secure and properly insulated.
- If the amplifier's fuse must be replaced, use only the same type and rating as that of the original. Do not substitute another kind.

CHOOSING A LOCATION AND MOUNTING THE AMPLIFIER

Choose a mounting location in the trunk or cargo area where the amplifier will not be damaged by shifting cargo. Amplifier cooling is essential for proper amplifier operation. If the amplifier is to be installed in an enclosed space, make sure there is sufficient air circulation for the amplifier to cool itself.

When mounting the amplifier under a seat, ensure that it is clear of all moving seat parts and does not affect the seat adjustments. Mount the amplifier so it is not damaged by the feet of backseat passengers. Make sure that the amplifier is mounted securely using nuts and bolts or the supplied mounting screws.

Mount the amplifier so that it remains dry – never mount an amplifier outside the vehicle or in the engine compartment.

POWER CONNECTIONS

The GTO amplifiers are capable of delivering extremely high power levels, and require a heavy-duty and reliable connection to the vehicle's electrical system in order to perform optimally. See Figure 1 for connection location. Please adhere to the following instructions carefully:

Ground Connection

Connect the amplifier's Ground (GND) terminal to a solid point on the vehicle's metal chassis, as close to the amplifier as possible. Refer to the chart below to determine minimum wire-gauge size. Scrape away any paint from this location; use a star-type lock washer to secure the connection.

Power Connection

Connect a wire (see chart at right for appropriate gauge) directly to the vehicle's positive battery terminal, and install an appropriate fuse holder within 18" of the battery terminal. *Do not install the fuse at this time.* Route the wire to the amplifier's location, and connect it to the amplifier's Positive (+12V) terminal. Be sure to use appropriate grommets whenever routing wires through the firewall or other sheet metal. *Failure to adequately protect the positive wire from potential damage may result in a vehicle fire.* When you are done routing and connecting this wire, you may install the fuse at the battery.

Remote Connection

Connect the amplifier's Remote (REM) terminal to the source unit's Remote Turn-On lead using a minimum of 18-gauge wire.

NOTE: When using the speaker level inputs, connect the remote (REM) terminal to the source unit. If your source unit does not have a remote turn-on connection, connect the amplifier's (REM) terminal to the vehicle's accessory circuit.

Speaker Connections

Refer to the application guides on the pages that follow. Speaker connections should be made using a minimum of 16-gauge wire.

NOTE: When using the high-level inputs, the AUX outputs can be used to pass a line-level signal to another amplifier.

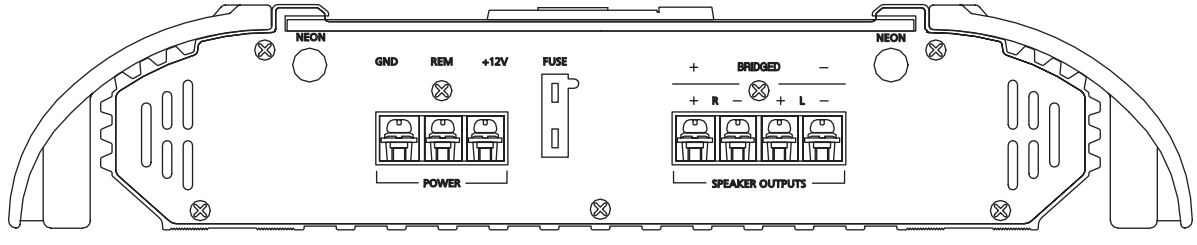
Wire Gauge Chart

Amplifier Model	Maximum Current Draw	Minimum Wire Gauge
GTO301.1	40A	#8 AWG

These recommendations assume 7' – 10' wire runs. If your installation differs markedly, you will need to adjust the wire gauge accordingly.

IMPORTANT NOTE: If you are planning to use optional neon tubes, install them before making any electrical connections to the amplifier (refer to"Installing Neon Tubes" on page 5).

Figure 1. Terminal connection end plate.



CONNECTIONS – GTO301.1/GTO301.1II

The GTO subwoofer amplifiers are single-channel amplifiers. There are two sets of terminals to make it easy to connect multiple woofers. Either set of (+/–) terminals may be used when connecting woofers.

To the right are two application diagrams to help plan your subwoofer system installation. **Figures 2 and 3** show how to configure the GTO subwoofer amplifiers

NOTE: For simplicity, Figures 2 and 3 do not show power, remote and input connections.

NOTE: Minimum speaker load is 2 ohms.

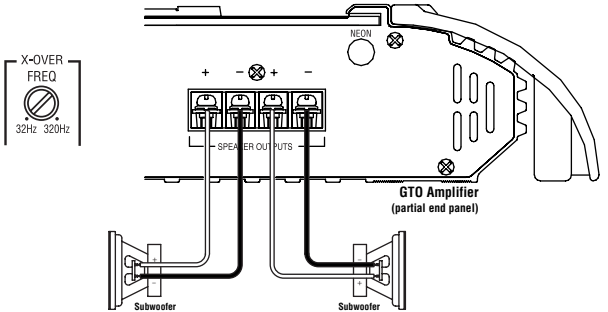


Figure 2. GTO subwoofer amplifier with two woofer connections.

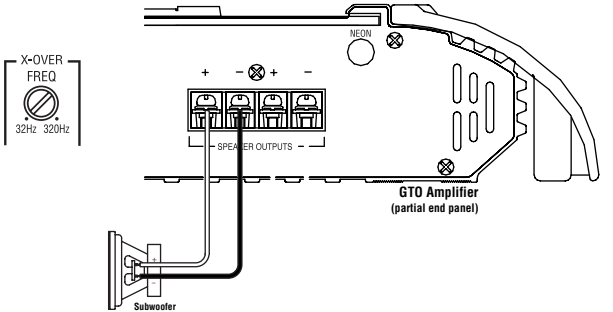


Figure 3. GTO subwoofer amplifier with one woofer connection.

INSTALLATION AND SETUP

SETTING THE CROSSOVER(S)

Determine your system plans and set the crossover mode switch accordingly.

Initially set the crossover frequency control midway. While listening to music, adjust the crossover for the least perceived distortion from the speakers, allowing them to reproduce as much bass as possible.

Systems using a separate subwoofer set the crossover mode to HP (high pass) for your full-range speakers. Adjust the crossover frequency to limit bass and provide increased system volume with less distortion.

For subwoofers, choose the highest frequency that removes vocal information from the sound of the subwoofer.

SETTING INPUT SENSITIVITY

1. Initially turn the INPUT LEVEL control(s) to minimum (counter clockwise).
2. Reconnect the (–) negative lead to the vehicle's battery. Apply power to the audio system and play a dynamic music track.
3. On the source unit, increase the volume control to 3/4 volume. Slowly increase the INPUT LEVEL control(s) toward three o'clock until you hear slight distortion in the music. Then reduce the INPUT LEVEL slightly until distortion is no longer heard.

NOTE: After the source unit is on, red LEDs (on the top panel) will light, indicating the amplifier is on. If not, check the wiring, especially the remote connection from the source unit. Also refer to "Troubleshooting" on the next page.

REMOTE LEVEL CONTROL

All three GTO subwoofer amplifiers have inputs for an optional remote level control (RLC). This will allow the amplifier's input level to be adjusted from the listening position. Connect the optional remote level control using the RJ-11 jack on the side of the amplifier. Install the control module in the front of the vehicle within easy reach of the driver. Under the dash or in the center console are both suitable locations.

SETTING THE BASS BOOST

All three GTO subwoofer amplifiers are all equipped with a bass-boost control. This allows you to adjust the bass output of your system at 50Hz up to 12dB and enhance low frequency.

AUX OUTPUT

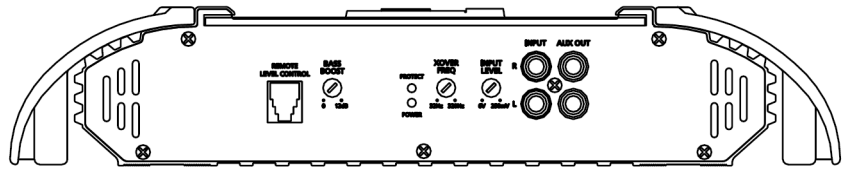
All three GTO subwoofer amplifiers are equipped with full-range outputs that can be used to connect additional amplifiers.

NOTE: When using the high-level inputs, the AUX outputs can be used to pass a line-level signal to another amplifier.

INSTALLING NEON TUBES (OPTIONAL)

1. Using a Phillips screwdriver, remove all screws on the amplifier's output/power end panel and set them aside.
2. Using a 3/32-inch Allen wrench, remove only the screws on the amplifier's (top) clear cover and set them aside.
3. Remove the end panel and slide the cover off. Set both parts aside.
4. Locate the enclosed hardware bag and remove the four clips. Each clip has a square end and a larger round end. Using a round end, press two clips onto each neon tube (e.g., Street Glow AN9 or equivalent), as shown in **Figure 13**.
5. For each tube, align both clips so the square ends slide onto an exposed extrusion edge, as shown in Figure 9. Do not cover any screw holes. When installed correctly, each neon tube will sit under an extrusion and not be visible when viewed from directly above.
6. Route each neon tube's power cable through its respective NEON hole on the end panel (see **Figure 13**).
7. Slide the cover back into place and re-install its screws. Then, replace the end panel and reinstall its screws.
8. Finish the installation of the neon tubes as instructed in their owner's manual.

Figure 12.



INSTALLATION AND SETUP

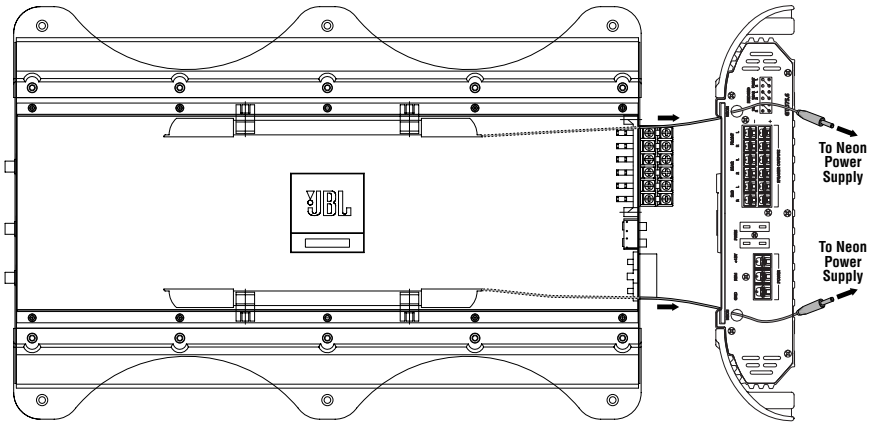
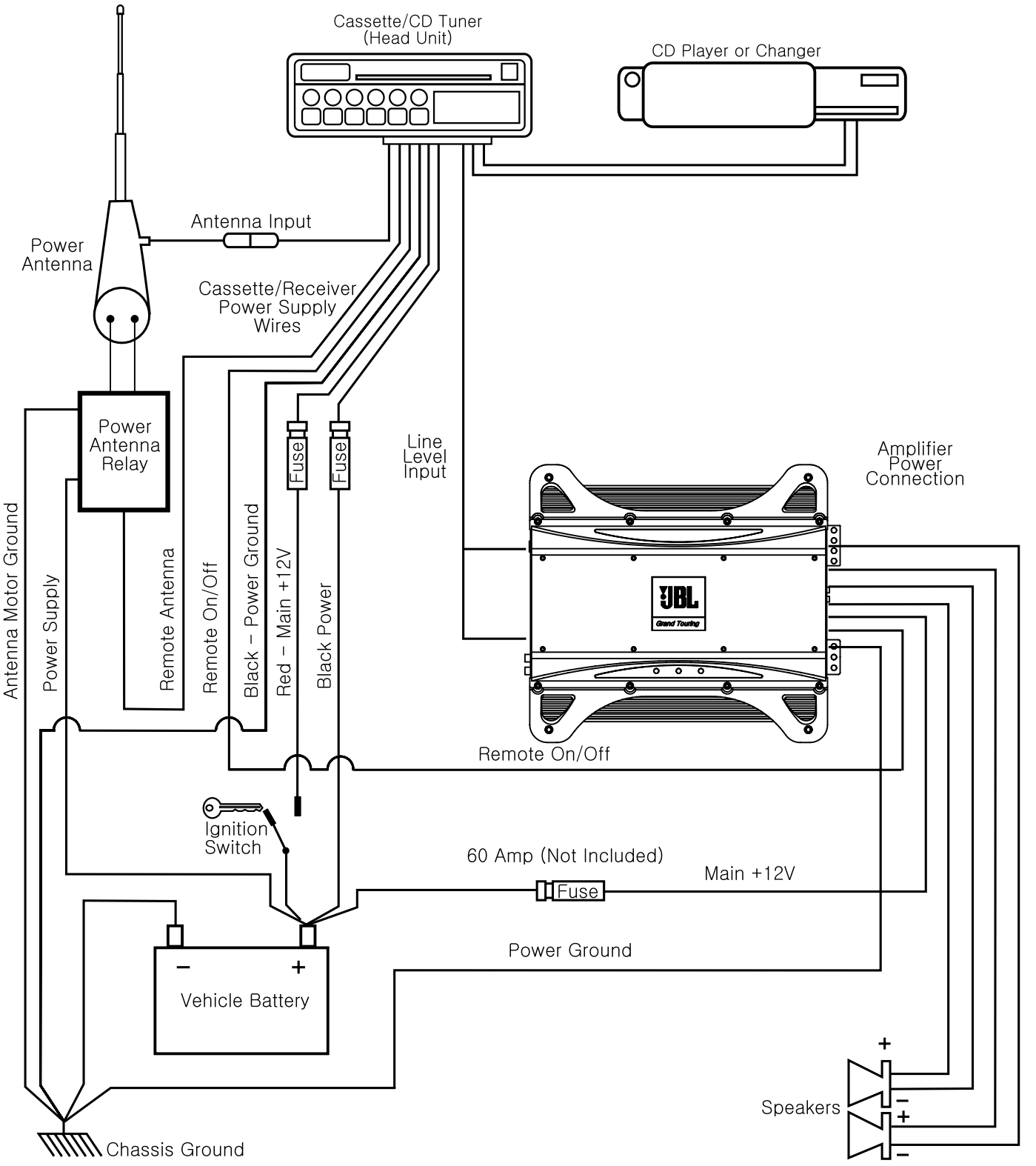


Figure 13. Installing neon tubes in a JBL GTO amplifier.

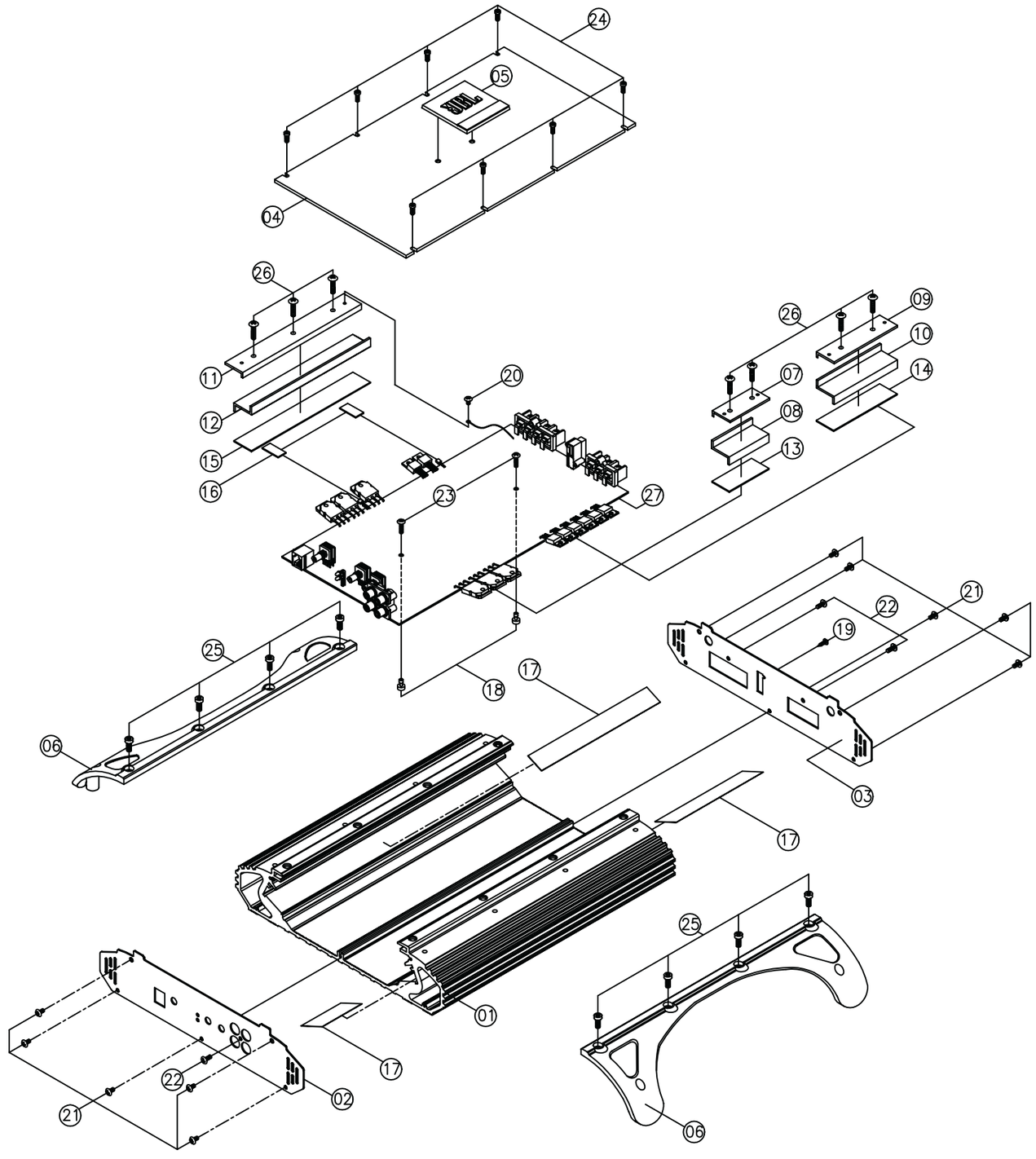
TROUBLESHOOTING

SYMPTOM	LIKELY CAUSE	SOLUTION
No audio (POWER LED is off)	No voltage at BATT+ or REM terminals, or bad or no ground connection	Check voltages at amplifier terminals with VOM
No audio (PROTECT LED flashes every 4 seconds)	DC voltage on amplifier output	Amplifier may need service; see enclosed warranty card for service information
No audio (PROTECT LED is on)	Amplifier is overheated	Make sure amplifier cooling is not blocked at mounting location; verify speaker system impedance is within specified limits (see "Specifications" on the next page)
No audio (PROTECT and POWER LEDs flash)	Voltage less than 9V on BATT+ connection	Check vehicle charging system for defective voltage regulator
No audio (PROTECT LED is on)	Voltage more than 16V or less than 8.5V on BATT+ connection regulator	Check vehicle charging system for defective voltage
Distorted audio	Input sensitivity is not set properly, or amplifier or source unit is defective	Check INPUT LEVEL setting; or check speaker wires for shorts or grounds
Distorted audio and PROTECT LED flashes	Short circuit in speaker or wire	Remove speaker leads one at a time to locate shorted speaker or wire, then repair
Music lacks "punch"	Speakers are not connected properly	Check speaker connections for proper polarity

Typical System Configuration



GTO 301.1/301.1II Exploded View



REVISIONS			
REV	DESCRIPTION	DATE	APRVD
1			
2			
3			

NO	PART NAME	DESCRIPTION	CODE NO.	Q'TY	REMARK
27	MAIN PCB ASS'Y	FR-1 1.6t ASS'Y	PAM629-01	1	
26	SCREW	SMP 4X14 NI	SC1-NP-40140	7	
25	SCREW	SML 4X10 NI	SC1-NL-40100	8	
24	SCREW	SML 3X8 BK	SC1-BL-30080	8	
23	SCREW	STT2 BH 3X12 NI	SC5-NB-30120	2	
22	SCREW	STT2 BH 3X8 BK	SC5-BB-30080	3	
21	SCREW	STT2 BH 3X6 BK	SC5-BB-30060	10	
20	SCREW	STT2 BH 3X5 NI	SC5-NB-30050	1	
19	SCREW	STT1 PH 2X6 BK	SC4-BP-20060	1	
18	SUPPORT-PCB	NYLON, L=4.8mm	SS-5	2	
17	SILICON PAD	SP1000, 22.0X0.3t	SIL-34-001A0	350mm	
16	CUSHION-RUBBER(A)	RUBBER, 10.0X20.0X1.6t	SUB-33-001A0	2	
15	CUSHION-TR BRACKET(C)	FIBER, 150.0X22.0X1.0t	SUB-28-047A0	1	
14	CUSHION-TR BRACKET(B)	FIBER, 110.0X22.0X1.0t	SUB-28-001A0	1	
13	CUSHION-TR BRACKET(A)	FIBER, 50.0X22.0X1.0t	SUB-28-084A0	1	
12	BRACKET-TR(F)	SBHG, 150.0X25.5X2.0t	BKT-11-014A0	1	
11	BRACKET-TR(E)	SBHG, 150.0X25.5X2.0t	BKT-11-013A0	1	
10	BRACKET-TR(D)	SBHG, 80.0X25.5X2.0t	BKT-11-004A0	1	
09	BRACKET-TR(C)	SBHG, 80.0X22.5X2.0t	BKT-11-003A0	1	
08	BRACKET-TR(B)	SBHG, 50.0X25.5X2.0t	BKT-11-010A0	1	
07	BRACKET-TR(A)	SBHG, 50.0X22.5X2.0t	BKT-11-009A0	1	
06	FOOT-MOUNTING	ABS(XR-401)	FOO-21-013AA	2	
05	BADGE	ABS(XR-401)	BAD-21-004AA	1	
04	WINDOW PLATE	ACRYLIC, 3.0t(L=289.5mm)	COV-22-018A0	1	
03	PANEL REAR (GTO301.1)	EGI, 1.2t	PAN-06-250AA	1	
	PANEL REAR (GTO301.1II)		PAN-06-330AB	1	
02	PANEL FRONT	EGI, 1.2t	PAN-06-255AA	1	
01	HEAT SINK MAIN	AL/EXTRUSION(L=290.0mm)	HEA-01-155AA	1	

10 ~ 100	0.1	0.2	0.3
100 ~ 500	0.2	0.3	0.5
500 ~ 1000	0.3	0.5	1.5

DRAW	CHECK	CHECK	APPRO

NAME: EXPLODE VIEW

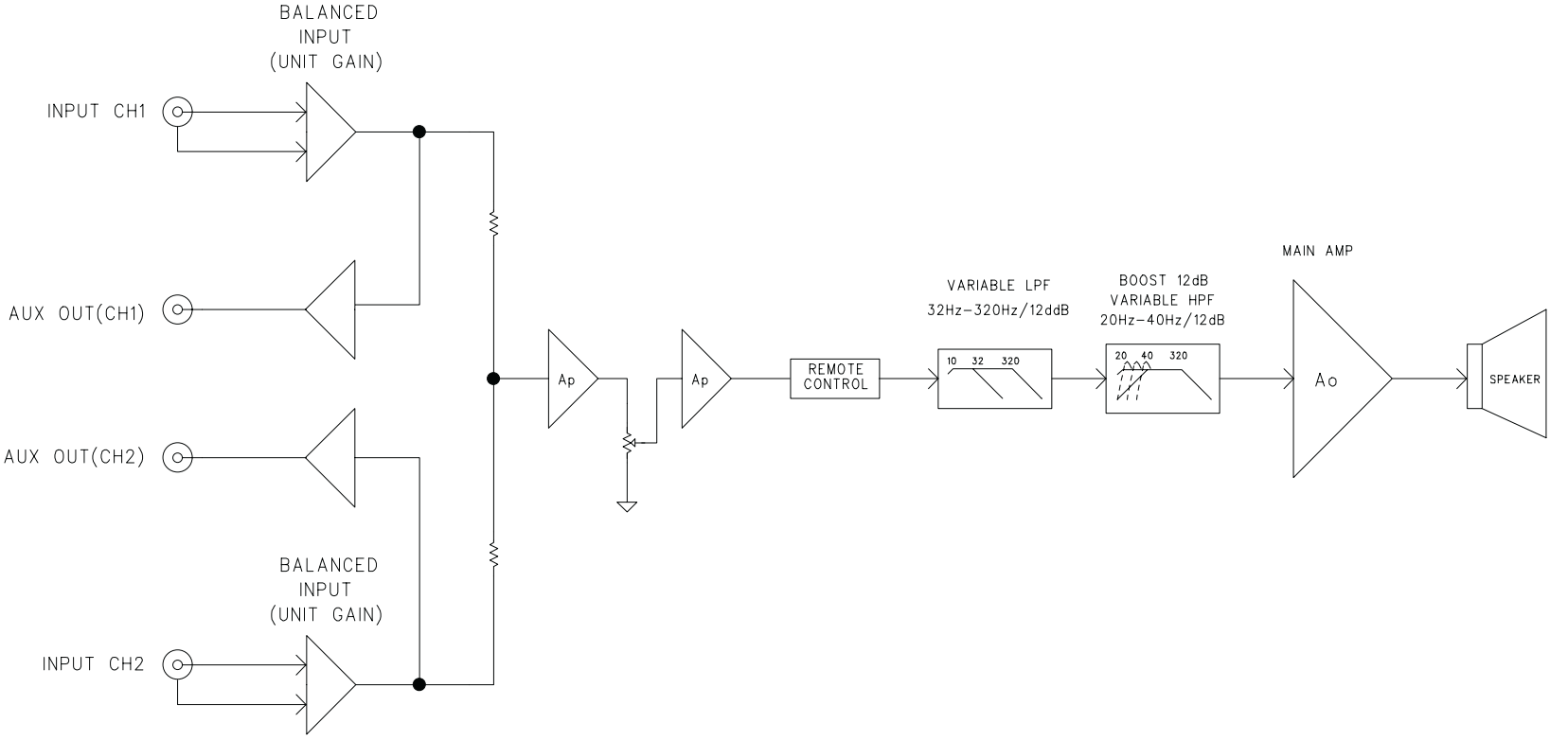
CODE NO.

ISSUE

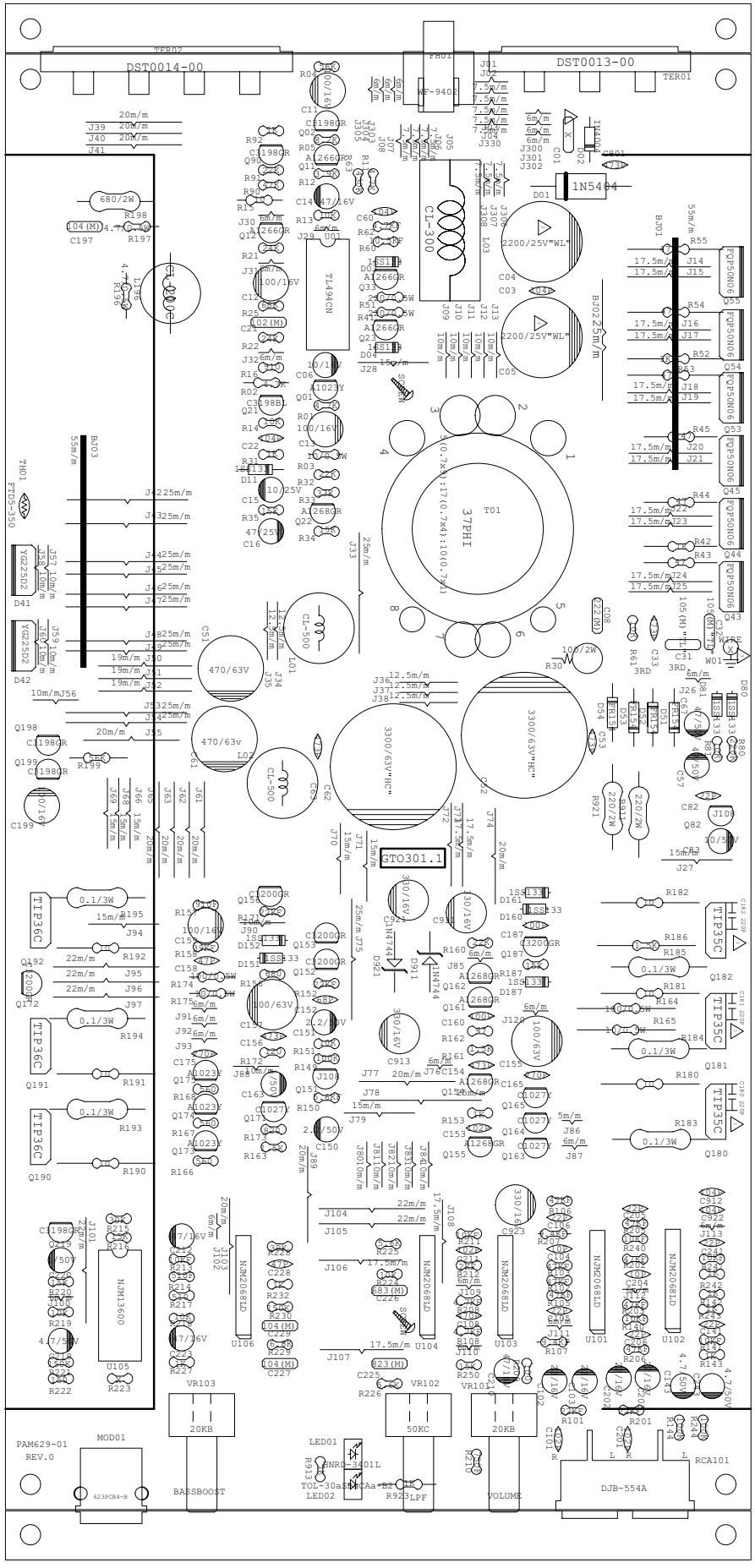
Mechanical Parts List

PART NO.	NOMENCATURE	DESCRIPTION		Q'TY
HEA-01-154A0	HEAT SINK MAIN	AL/EXTRUSION		
HEA-01-155AA	HEAT SINK MAIN	AL/EXTRUSION(L=290.0mm)	W/Spray black color	1
PAN-06-249AA	PANEL FRONT	EGI, 1.2t	W/Painting & silkscreen	1
PAN-06-250AA	PANEL REAR (GTO 301.1)	EGI, 1.2t	W/Painting & silkscreen	1
PAN-06-330AB	PANEL REAR (GTO 301.1II)	EGI, 1.2t	W/Painting & silkscreen	1
COV-22-018A0	WINDOW PLATE	ACRYLIC, 3.0t(L=289.5mm)		1
BAD-21-004AA	BADGE	ABS(XR-401)	W/Hot stam p & silkscreen	1
FOO-21-013AA	FOOT MOUNTING	ABS(XR-401)	W/Spray silkcolor	2
BKT-14-523A0	BRACKET LAMP	SK-5/BK	W/Heat treatment	4
BKT-11-009A0	BRACKET TR(A)	SBHG, 50.0x22.5x2.0t		3
BKT-11-010A0	BRACKET TR(B)	SBHG, 50.0x25.5x2.0t		3
BKT-11-003A0	BRACKET TR(C)	SBHG, 80.0x22.5x2.0t		1
BKT-11-004A0	BRACKET TR(D)	SBHG, 80.0x25.5x2.0t		1
SUB-28-084A0	CUSHION TR BRACKET(A)	FIBER, 50.0x22.0x1.0t		3
SUB-28-007A0	CUSHION TR BRACKET(B)	FIBER, 80.0x22.0x1.0t		1
SUB-33-001A0	CUSHION RUBBER	RUBBER, 10.0x20.0x1.6t		3
SIL-34-001A0	SILICON PAD	SP1000, 22.0x0.3t		250mm
SS-5	SUPPORT PCB	NYLON, L=4.8mm		2
SUB-27-003A0	SWITCH DECAL	FELT, 15.0x7.0x0.3t		2
SUB-28-002A0	PAPER SPACER(A)	FIBER, 200.0x6.0x0.5t		1
SUB-28-519A0	PAPER SPACER(B)	FIBER, 200.0x8.0x0.5t		1
SC4-BP-20060	SCREW	STT1 PH 2x6 BK	FUSE HOLDER	1
SC5-NB-30050	SCREW	STT2 BH 3x5 NI	GROUND WIRE	1
SC5-BB-30060	SCREW	STT2 BH 3x6 BK	SIDE PANEL + H/SINK	10
SC5-BB-30080	SCREW	STT2 BH 3x8 BK	RCA(1), TERMINAL(2)	3
SC5-NB-30120	SCREW	STT2 BH 3x12 NI	PCB + HEAT SINK	2
SC1-BL-30080	SCREW	SML 3x8 BK	WINDOW + H/SINK	8
SC1-NL-40100	SCREW	SML 4x10 NI	FOOT + H/SINK	8
SC1-NP-40140	SCREW	SMP 4x14 NI	BRACKET TR	8
SC4-NP-40250	SCREW	STT1 PH 4x25 NI	ACCESSORY	4

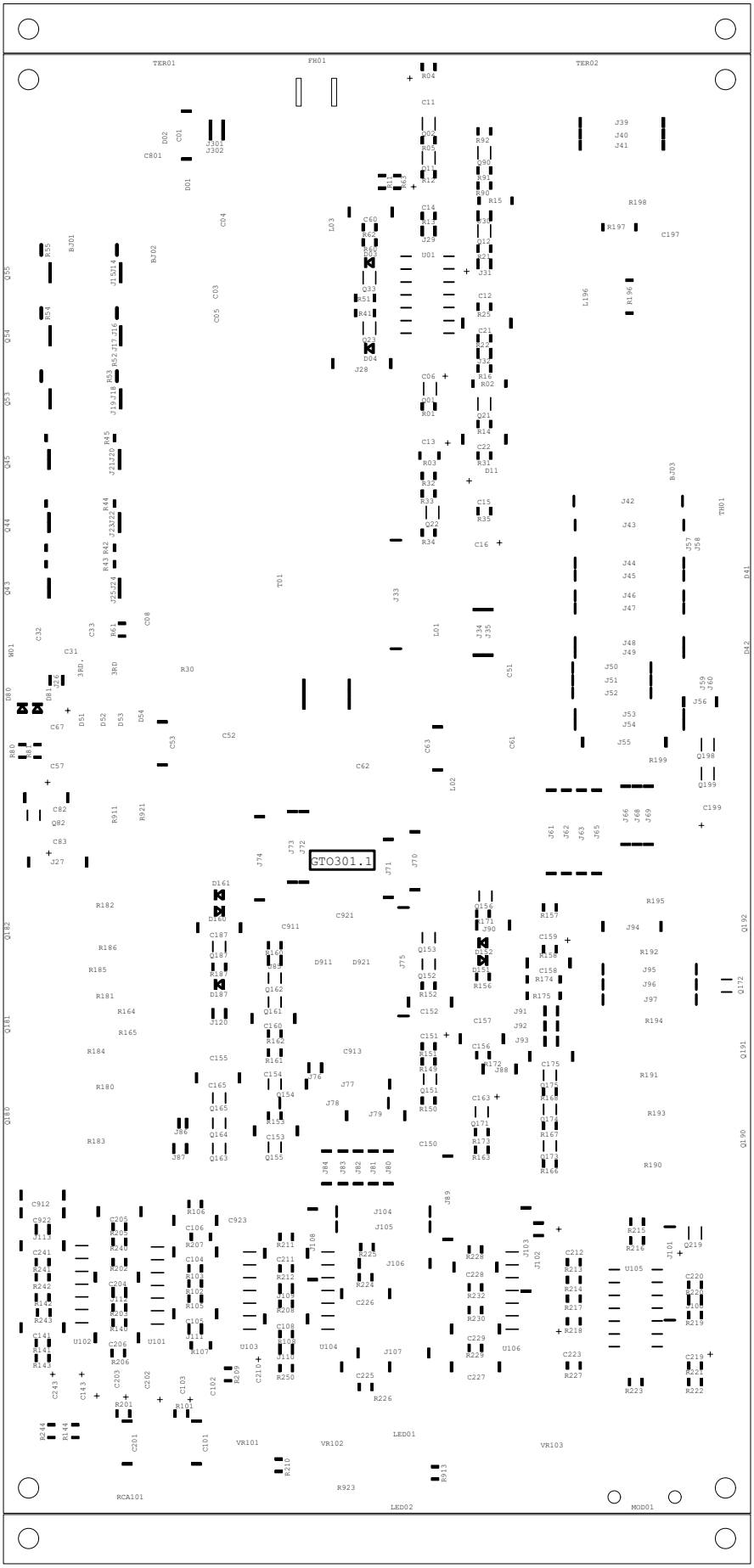
GTO301.1/GTO301.1II BLOCK DIAGRAM



Printed Circuit Board (Top View)



Printed Circuit Board (BOTTOM View)



GTO301.1 Parts List

PART NO.	NOMENCATURE	DESCRIPTION	MFR PARTS	REF. NO	Q'TY
FET-00-00045	F.E.T	MUTTING J-FET	J108	Q82,151	2
TRS-00-00087	TRANSISTOR	SMALL SIGNAL PNP	KTA1023Y	Q01,173,174,175	4
TRS-00-00088	TRANSISTOR	SMALL SIGNAL NPN	KTC1027Y	Q163,164,165,171	4
TRS-00-00091	TRANSISTOR	SMALL SIGNAL PNP	KTA1268GR	Q22,154,155,161,162	5
TRS-00-00111	TRANSISTOR	SMALL SIGNAL NPN	KTC3200GR	Q152,153,156,187	4
TRS-00-00090	TRANSISTOR	SMALL SIGNAL PNP	KTA1266GR	Q11,12,23,33	4
TRS-00-00110	TRANSISTOR	SMALL SIGNAL NPN	KTC3198GR	Q02,90,198,199,219	5
TRS-00-00109	TRANSISTOR	SMALL SIGNAL NPN	KTC3198BL	Q21	1
DIO-00-00108	DIODE	FAST RECOVERY	FR154	D51,52,53,54	4
DIO-00-00003	DIODE	RECTIFIER	IN4004	D02	1
DIO-00-00006	DIODE	SWITCHING SIGNAL	1SS133 /1N4148	D03,04,11,80,81,151,152,160,161,187	10
RES-00-00549	RESISTOR	METAL FILM 1/5WF	510 OHM	R214	1
RES-00-00577	RESISTOR	METAL FILM 1/5WF	750 OHM	R210	1
RES-00-00590	RESISTOR	METAL FILM 1/5WF	910 OHM	R157	1
RES-00-00482	RESISTOR	METAL FILM 1/5WF	2K OHM	R212	1
RES-00-00523	RESISTOR	METAL FILM 1/5WF	4.7K OHM	R62,108,208	3
RES-00-00545	RESISTOR	METAL FILM 1/5WF	5.6K OHM	R150	1
RES-00-00589	RESISTOR	METAL FILM 1/5WF	9.4K OHM	R107,207	2
RES-00-00402	RESISTOR	METAL FILM 1/5WF	10K OHM	R140,141,211,213,240,241	6
RES-00-00399	RESISTOR	METAL FILM 1/5WF	10.5K OHM	R60	1
RES-00-00467	RESISTOR	METAL FILM 1/5WF	22K OHM	R101,152,171,201	4
RES-00-00517	RESISTOR	METAL FILM 1/5WF	39K OHM	R158	1
RES-00-00537	RESISTOR	METAL FILM 1/5WF	47K OHM	R102,103,105,106,202,203,205,206	8
RES-00-00610	RESISTOR	CARBON FILM 1/5WJ	10 OHM	R15,180,181,182,190,191,192	7
RES-00-00716	RESISTOR	CARBON FILM 1/5WJ	47 OHM	R43,44,45,53,54,55,162	7
RES-00-00606	RESISTOR	CARBON FILM 1/5WJ	100 OHM	R209	1
RES-00-00615	RESISTOR	CARBON FILM 1/5WJ	120 OHM	R172	1
RES-00-00622	RESISTOR	CARBON FILM 1/5WJ	150 OHM	R222	1
RES-00-00723	RESISTOR	CARBON FILM 1/5WJ	510 OHM	R217	1
RES-00-00728	RESISTOR	CARBON FILM 1/5WJ	560 OHM	R166,167,168	3
RES-00-00741	RESISTOR	CARBON FILM 1/5WJ	680 OHM	R156	1
RES-00-00756	RESISTOR	CARBON FILM 1/5WJ	820 OHM	R173	1
RES-00-00761	RESISTOR	CARBON FILM 1/5WJ	910 OHM	R16	1
RES-00-00633	RESISTOR	CARBON FILM 1/5WJ	1K OHM	R31,42,52,92,142,143,153,227,232,242 R243,913,923	13
RES-00-00598	RESISTOR	CARBON FILM 1/5WJ	1.5K OHM	R161,163,186	3
RES-00-00676	RESISTOR	CARBON FILM 1/5WJ	3.9K OHM	R12	1
RES-00-00702	RESISTOR	CARBON FILM 1/5WJ	4.7K OHM	R01,02,11	3
RES-00-00720	RESISTOR	CARBON FILM 1/5WJ	5.6K OHM	R225,226	2
RES-00-00734	RESISTOR	CARBON FILM 1/5WJ	6.8K OHM	R229	1
RES-00-00751	RESISTOR	CARBON FILM 1/5WJ	8.2K OHM	R05	1
RES-00-00608	RESISTOR	CARBON FILM 1/5WJ	10K OHM	R13,14,61,81,151,218,219,224	8
RES-00-00623	RESISTOR	CARBON FILM 1/5WJ	15K OHM	R34,35,187,216,220,250	6
RES-00-00658	RESISTOR	CARBON FILM 1/5WJ	22K OHM	R32,91,160	3
RES-00-00663	RESISTOR	CARBON FILM 1/5WJ	24K OHM	R21,22	2
RES-00-00680	RESISTOR	CARBON FILM 1/5WJ	30K OHM	R215	1
RES-00-00687	RESISTOR	CARBON FILM 1/5WJ	33K OHM	R33	1
RES-00-00697	RESISTOR	CARBON FILM 1/5WJ	39K OHM	R228	1
RES-00-00714	RESISTOR	CARBON FILM 1/5WJ	47K OHM	R90	1
RES-00-00730	RESISTOR	CARBON FILM 1/5WJ	56K OHM	R04,199	2

GTO301.1 Parts List

PART NO.	NOMENCATURE	DESCRIPTION	MFR PARTS	REF. NO	Q'TY
RES-00-00742	RESISTOR	CARBON FILM 1/5WJ	68K OHM	R25	1
RES-00-00604	RESISTOR	CARBON FILM 1/5WJ	100K OHM	R144,149,244	3
RES-00-00620	RESISTOR	CARBON FILM 1/5WJ	150K OHM	R221,230	2
RES-00-00654	RESISTOR	CARBON FILM 1/5WJ	220K OHM	R80	1
RES-00-00706	RESISTOR	CARBON FILM 1/5WJ	430K OHM	R63	1
RES-00-00053	RESISTOR	METAL FILM 1/2WJ	4.7 OHM	R196,197	2
RES-00-00018	RESISTOR	METAL FILM 1/2WJ	10 OHM	R03,165,175	3
RES-00-00016	RESISTOR	METAL FILM 1/2WJ	100 OHM	R164,174	2
RES-00-00038	RESISTOR	METAL FILM 1/2WJ	220 OHM	R41,51	2
ELC-00-00218	CAPACITOR	ELECTROLYTIC "SMS"	1/50V	C163,220	2
ELC-00-00223	CAPACITOR	ELECTROLYTIC "SMS"	2.2/50V	C150,151	2
ELC-00-00229	CAPACITOR	ELECTROLYTIC "SMS"	4.7/50V	C143,219,243	3
ELC-00-00195	CAPACITOR	ELECTROLYTIC "SMS"	10/16V	C06	1
ELC-00-00203	CAPACITOR	ELECTROLYTIC "SMS"	10/25V	C15	1
ELC-00-00220	CAPACITOR	ELECTROLYTIC "SMS"	10/50V	C83	1
ELC-00-00197	CAPACITOR	ELECTROLYTIC "SMS"	22/16V	C102,103,202,203	4
ELC-00-00198	CAPACITOR	ELECTROLYTIC "SMS"	47/16V	C14,210,212,223	4
ELC-00-00205	CAPACITOR	ELECTROLYTIC "SMS"	47/25V	C16	1
ELC-00-00227	CAPACITOR	ELECTROLYTIC "SMS"	47/50V	C57,67	2
ELC-00-00199	CAPACITOR	ELECTROLYTIC "SMS"	100/16V	C11,12,13,159,199	5
ELC-00-00201	CAPACITOR	ELECTROLYTIC "SMS"	330/16V	C911,913,921,923	4
MYC-00-00020	CAPACITOR	MYLAR 5% 100V	102(M) J	C21	1
MYC-00-00031	CAPACITOR	MYLAR 5% 100V	222(M) J	C08	1
MYC-00-00044	CAPACITOR	MYLAR 5% 100V	683(M) J	C226	1
MYC-00-00045	CAPACITOR	MYLAR 5% 100V	823(M) J	C225	1
MYC-00-00094	CAPACITOR	MYLAR 5% 100V	104(M) J	C197,227,229,35	4
MYC-00-00085	CAPACITOR	MYLAR 5% 63V "TL"	105(M) J	C31,32,36	3
CEC-00-00074					
CEC-00-00077	CAPACITOR	CERAMIC DISK 50V	10P F	C104,204	2
CEC-00-00090	CAPACITOR	CERAMIC DISK 50V	22P F	C82,105,106,141,205,206,241	7
CEC-00-00103	CAPACITOR	CERAMIC DISK 50V	47P F	C158,228	2
CEC-00-00108	CAPACITOR	CERAMIC DISK 50V	68P F	C152	1
CEC-00-00073	CAPACITOR	CERAMIC DISK 50V	100P F	C160,187	2
CEC-00-00092	CAPACITOR	CERAMIC DISK 50V	270P F	C165,175	2
CEC-00-00101	CAPACITOR	CERAMIC DISK 50V	470P F	C108	1
CEC-00-00074	CAPACITOR	CERAMIC DISK 50V	102P F	C101,153,201,211,37	5
CEC-00-00102	CAPACITOR	CERAMIC DISK 50V	473P F	C33,53,63,154,156,801	6
CEC-00-00076	CAPACITOR	CERAMIC DISK 50V	104P F	C03,22,60,912,922	5
CEC-00-00086	CAPACITOR	CERAMIC DISK 50V	220P F	C180,181,182	3
JUP-00-00051	JUMPER	0OHM JUMPER	5m/m	J86	1
JUP-00-00043	JUMPER	0OHM JUMPER	6m/m	J26,29,30,31,32,76,85,87,91,92 J93,100,102,109,110,111,112,113,120,300 J301,302,303,304,305	25
JUP-00-00044	JUMPER	0OHM JUMPER	7.5m/m	J01,02,03,04,05,06,07,08,306,307 J308,330	12
JUP-00-00045	JUMPER	0OHM JUMPER	10m/m	J09,10,11,12,13,56,57,58,59,60 J80,81,82,83,84,88,90	17
JUP-00-00046	JUMPER	0OHM JUMPER	12.5m/m	J34,35,36,37,38	5
JUP-00-00047	JUMPER	0OHM JUMPER	15m/m	J27,28,66,68,69,70,71,79,94	9
JUP-00-00048	JUMPER	0OHM JUMPER	17.5m/m	J14,15,16,17,18,19,20,21,22,23 J24,25,72,73,106,107,108	17
JUP-00-00074	JUMPER	0OHM JUMPER	19m/m	J50,51,52	3
JUP-00-00049	JUMPER	0OHM JUMPER	20m/m	J39,40,41,55,61,62,63,65,74,77 J89,103	12

GTO301.1 Parts List

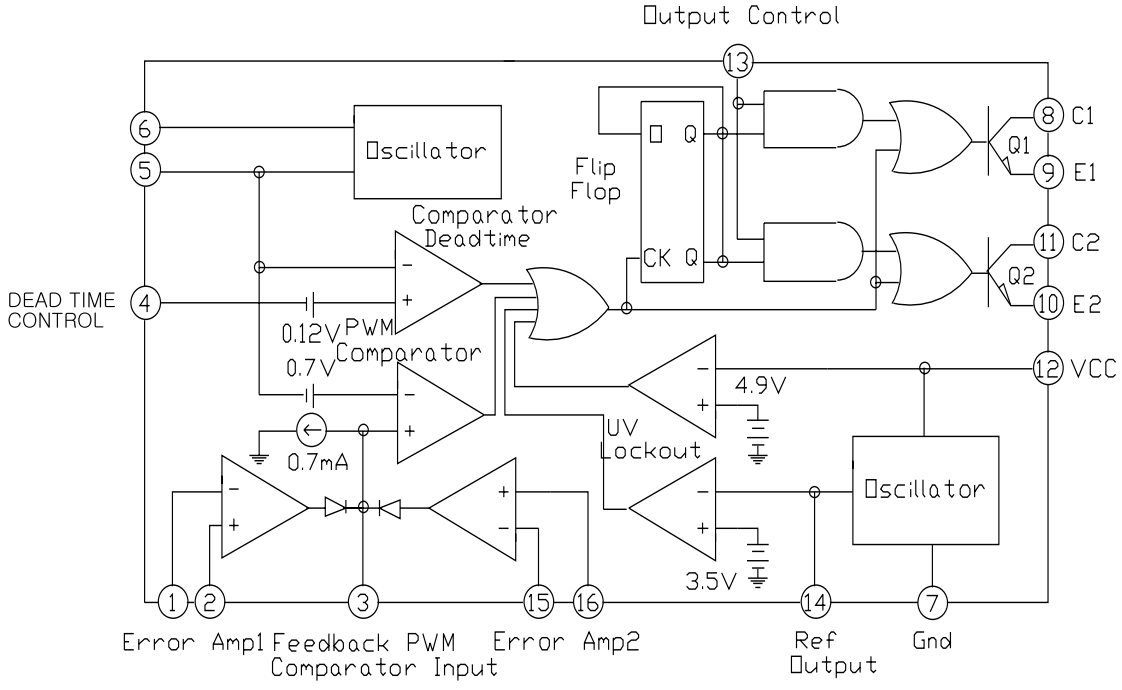
PART NO.	NOMENCATURE	DESCRIPTION	MFR PARTS	REF. NO	Q'TY
JUP-00-00075	JUMPER	0OHM JUMPER	22m/m	J95,96,97,101,104,105	6
JUP-00-00042	JUMPER	0OHM JUMPER	25m/m	J33,42,43,44,45,46,47,48,49,53 J54,75,78	13
ICO-00-00022	I.C	PWM I.C	TL494CN	U01	1
ICO-00-00170	I.C	ELECTRIC VOLUME I.C	NJM13600D	U105	1
ICO-00-00112	I.C	DUAL OP AMP (SIP-08P)	NJM2068LD	U101,102,103,104,106	5
FET-00-00023	F.E.T	N-CH MOSFET	FQP50N06	Q43,44,45,53,54,55	6
TRS-00-00188	TRANSISTOR	AUDIO POWER NPN	TIP35C	Q180,181,182	3
TRS-00-00207	TRANSISTOR	AUDIO POWER PNP	TIP36C	Q190,191,192	3
TRS-00-00111	TRANSISTOR	SMALL SIGNAL NPN	KTC3200GR	Q172	1
DIO-00-00152	DIODE	FAST RECOVERY	YG225D2	D41,42	2
DIO-00-00048	DIODE	RECTIFIER	1N5404	D01	1
DIO-00-00206	DIODE	ZENER 1W 15V	1N4744A	D911,921	2
DIO-00-00278	LED	RED COLOR 3PHI	HNRD-3401L	LED01	1
DIO-00-00303	LED	BLUE COLOR 3PHI	TOL-30aSBaCAa-B2	LED02	1
RES-00-01223	RESISTOR	MOR/S 2WJ	100 OHM	R30	1
RES-00-01270	RESISTOR	MOR/S 2WJ	220 OHM	R911,921	2
RES-00-01041	RESISTOR	MOR/S 2WJ	680 OHM	R198	1
RES-00-00895	RESISTOR	WIRE WOUND 3WJ	0.1 OHM	R183,184,185,193,194,195	6
ELC-00-00235	CAPACITOR	ELECTROLYTIC "SMS"	100/63V	C155,157	2
ELC-00-00276	CAPACITOR	ELECTROLYTIC "SMS"	470/63V	C51,61	2
ELC-00-00727	CAPACITOR	ELECTROLYTIC "WL"	2200/25V	C04,05	2
ELC-00-00618	CAPACITOR	ELECTROLYTIC "HC"	3300/63V	C52,62	2
THS-00-00013	THERMISTOR	50K NTC RESISTOR	FTD5-350	TH01	1
VOL-00-00335	VOLUME	V12L5(9x5)G(PH2D)N15S	3B20KB 2!	VR101,103	2
VOL-00-00336	VOLUME	V12L5(9x5)G(PH2D)N15S	15C50KC 2!	VR102	1
COR-TF-00384	CORE		37PHI ISU	T01 [5T(0.7x9):17T(0.7x4):10T(0.7x1)]	1
COI-00-00034	INDUCTOR	DRUM COIL	CL-500	L01,02	2
COI-00-00023	INDUCTOR	BAR COIL	CL-300	L03	1
COI-00-00019	INDUCTOR	AIR COIL	CL-200C	L196	1
JAC-00-00043	RCA JACK		DJB-554A	RCA101	1
JAC-00-00050	MODULAR		623PCB4-B	MOD01	1
TER-00-00241	TERMINAL	GOLD PLATED(3P)	DST0013-00	TER01	1
TER-00-00242	TERMINAL	GOLD PLATED(4P)	DST0014-00	TER02	1
JUP-00-00005	JUMPER	METAL JUMPER	55m/m	BJ01,03	2
JUP-00-00002	JUMPER	METAL JUMPER	25m/m	BJ02	1
WIR-00-00015	WIRE ASS'Y	AWG #22 BLACK 3.2PHI RING RUG	60m/m	W02,03,04	3
HOD-00-00009	FUSE HOLDER		WF-9402	FH01	1
TUB-00-00008	TEFLON TUBE	0.7PHI	10m/m	Q172, TH01	3
TUB-00-00009	TEFLON TUBE	0.7PHI	15m/m	LED02	2
TUB-00-00006	TEFLON TUBE	0.7PHI	20m/m	LED01	2
FUS-AT-00006	AUTO FUSE		30A	SET1+ASS'Y1	2
	HEAT TUBE	2PHI	15m/m	W02,03,04	3

GTO 301.1 Version II Electrical Parts List Addendum

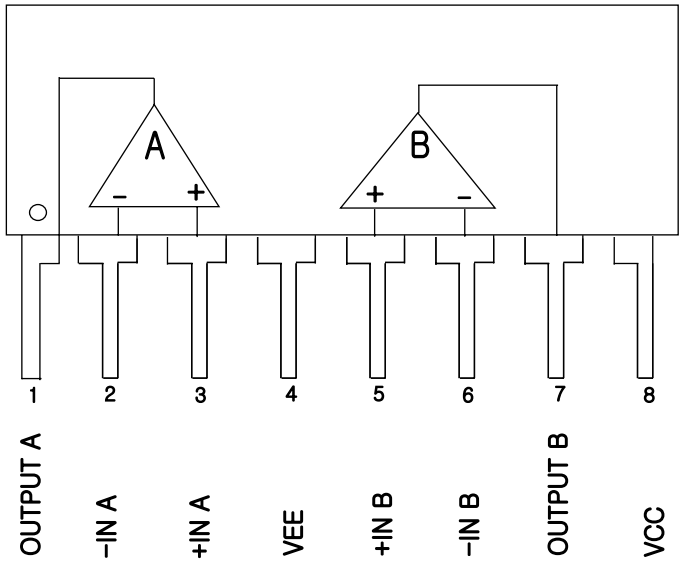
The following chart below represents the only electrical parts differences in Version I and II models:

	MODEL	PART NAME	PART NO	SPEC	DESIGNATOR
1	GTO 301.1	RESISTOR	RES-00-00577	1/5WF 750 OHM	R210
	GTO 301.1II	**RESISTOR**	**RES-00-00474**	**1/5WF 240 OHM**	**R210**
2	GTO 301.1	RESISTOR	RES-00-00482	1/5WF 2K OHM	R212
	GTO 301.1II	**RESISTOR**	**RES-00-00554**	**1/5WF 560 OHM**	**R212**
3	GTO 301.1	POWER TERMINAL	TER-00-00238	(3P) DST0013-00	TER01
	GTO 301.1II	POWER TERMINAL	**TER-00-00277**	**(3P) DK-03B03-AG-1-DN**	**TER01**
4	GTO 301.1	SPEAKER TERMINAL	TER-00-00239	(4P) DST0014-00	TER02
	GTO 301.1II	SPEAKER TERMINAL	**TER-00-00275**	**(4P) DK-04A03-AG-1-DN**	**TER02**

U01 (TL494CN) P.W.M IC

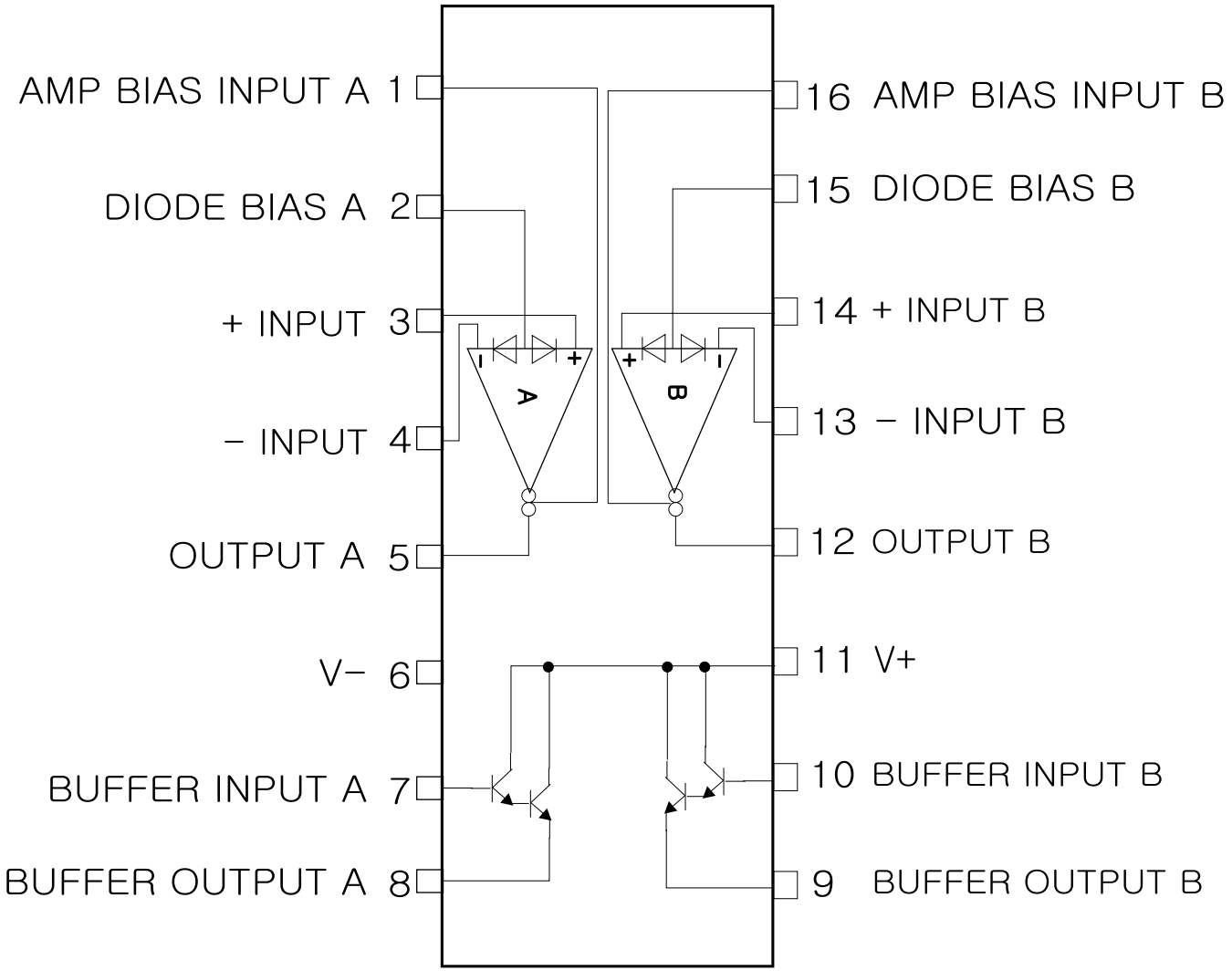


U101,102,103,104,106 (NJM2068LD) DUAL OP AMP

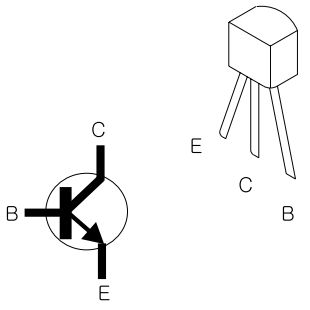


Integrated Circuit Diagrams

U105 (NJM13600D)



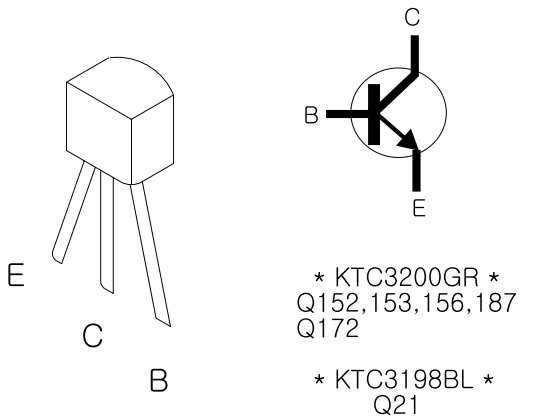
Transistor Diagrams



* KTC3198GR *
Q02,90,198,199,219

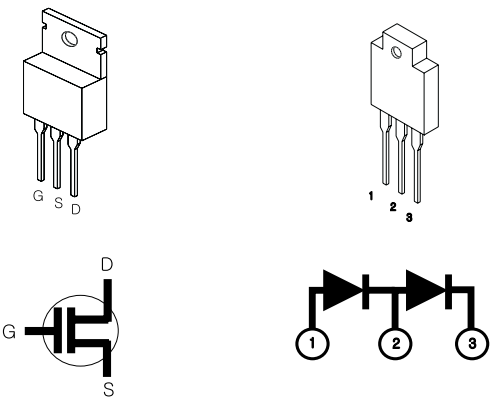
* KTA1266GR *
Q11,12,23,33

* KTA1268GR *
Q22,154,155,161
Q162



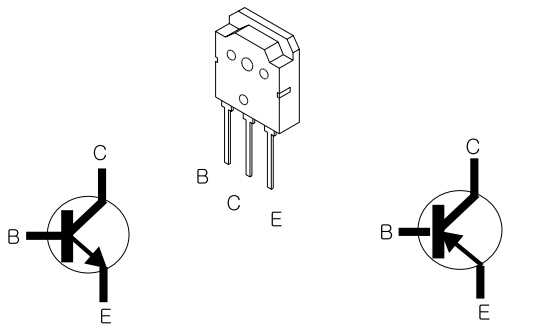
* KTC3200GR *
Q152,153,156,187
Q172

* KTC3198BL *
Q21



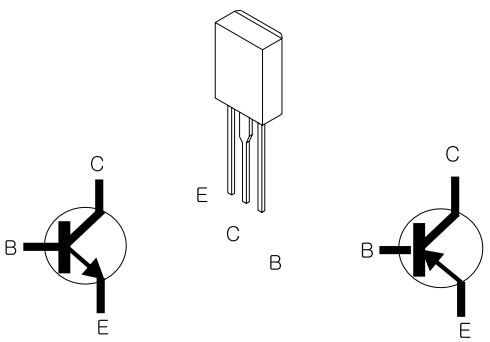
* FQP50N06
Q43,44,45,53,54,55

* YG225D2 *
D41,42



* TIP35C *
Q180,181,182

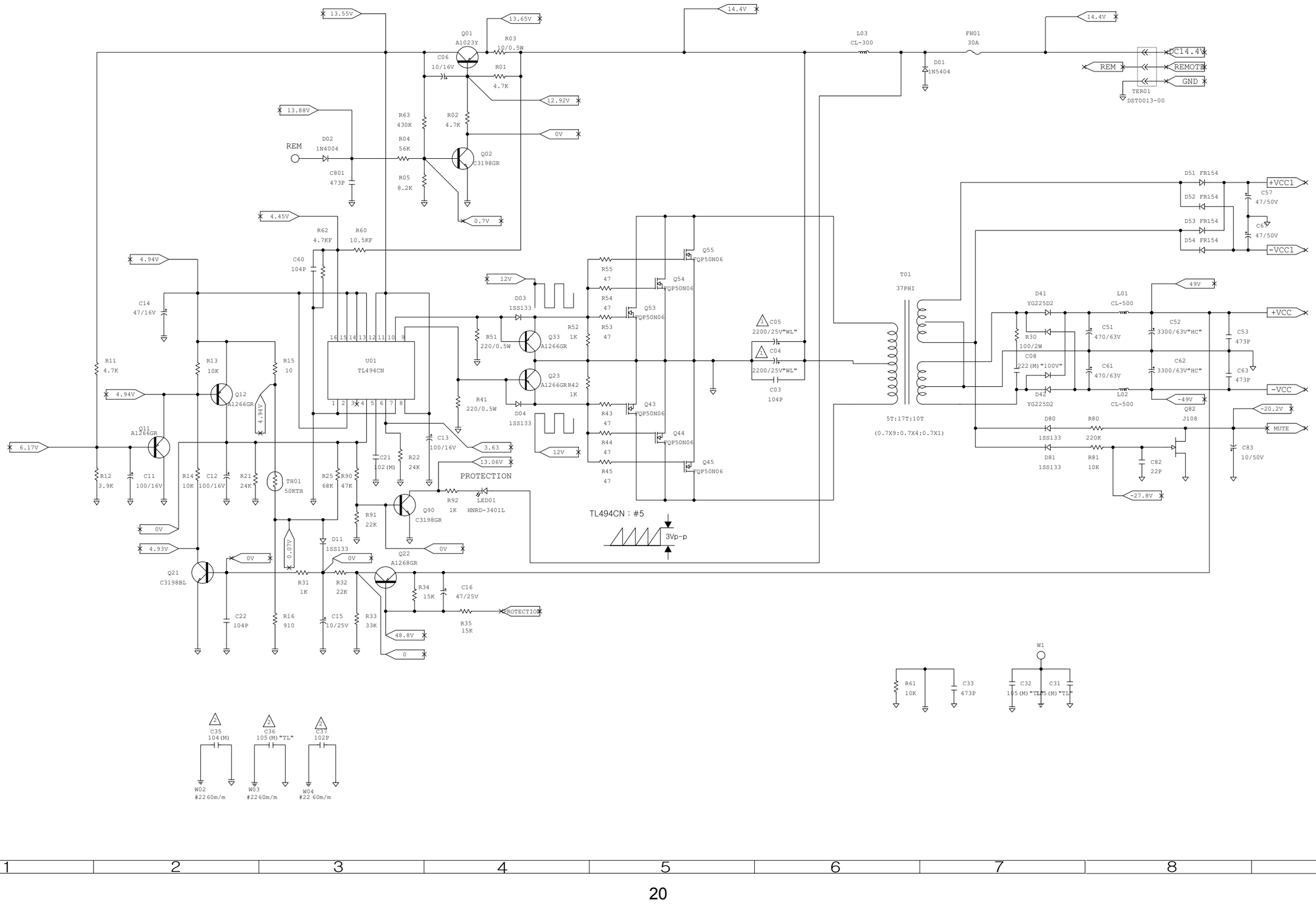
* TIP36C *
Q190,191,192



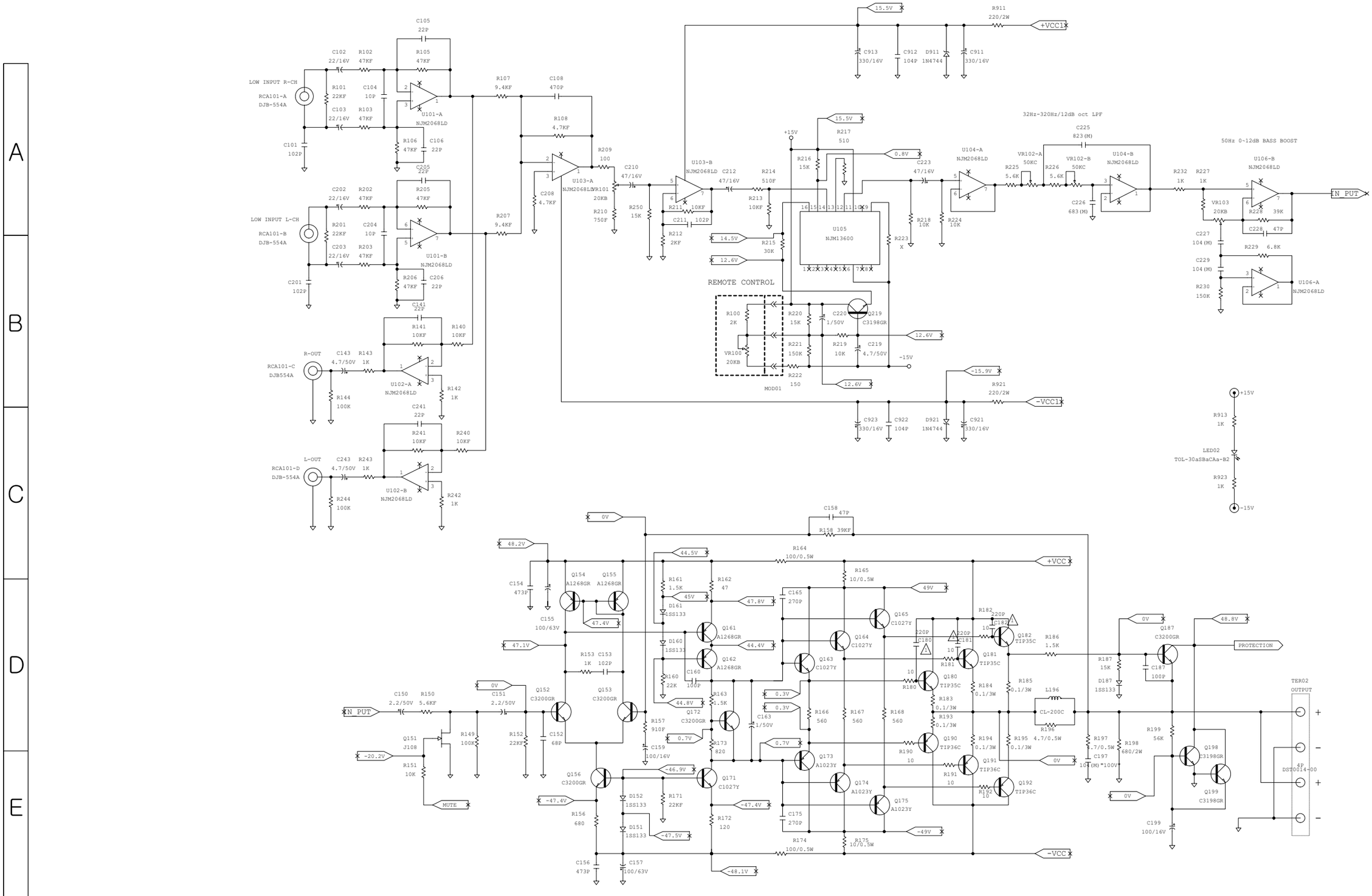
* KTC1027Y *
Q163,164,165,171

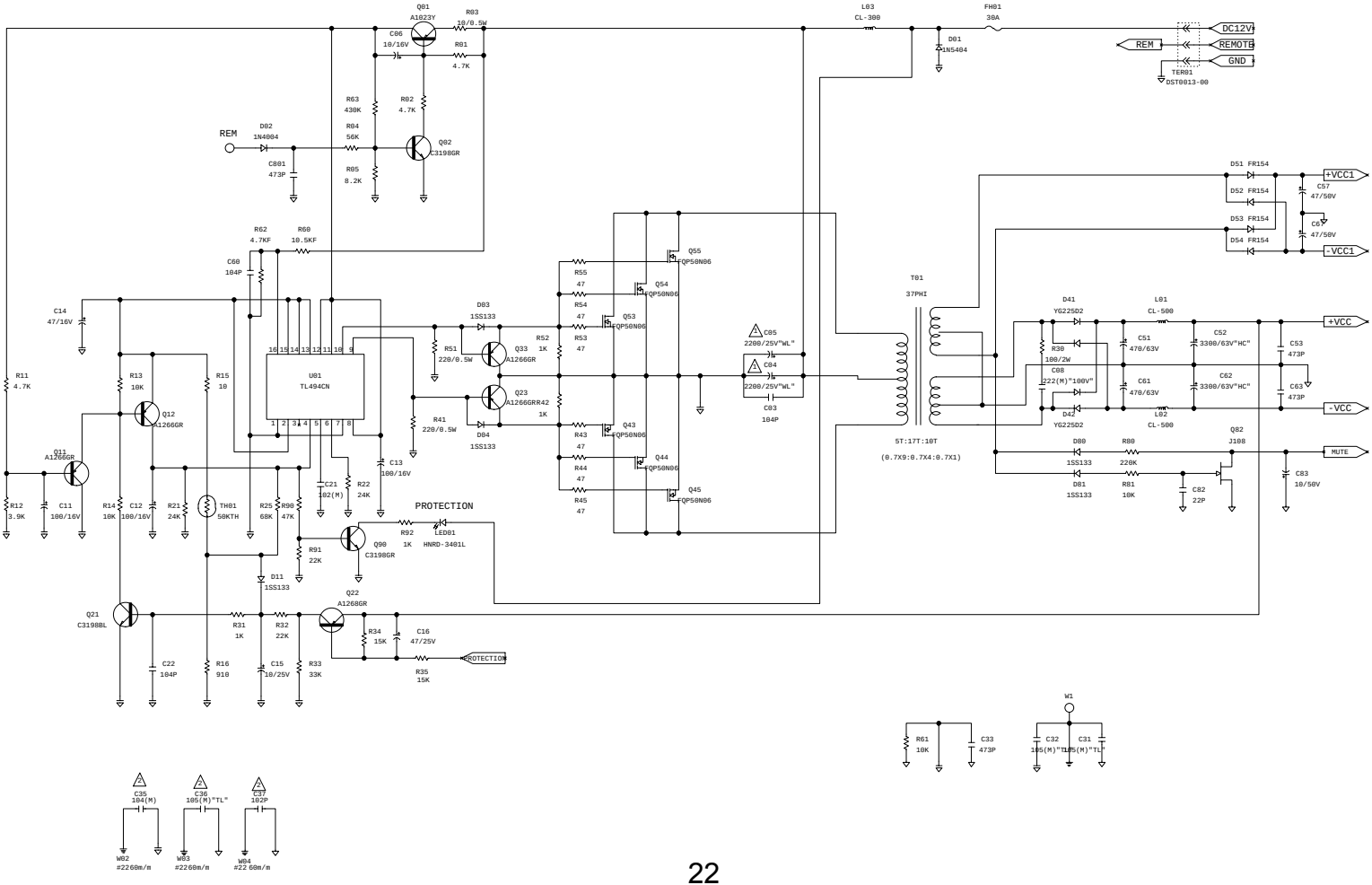
* KTA1023Y *
Q01,173,174,175

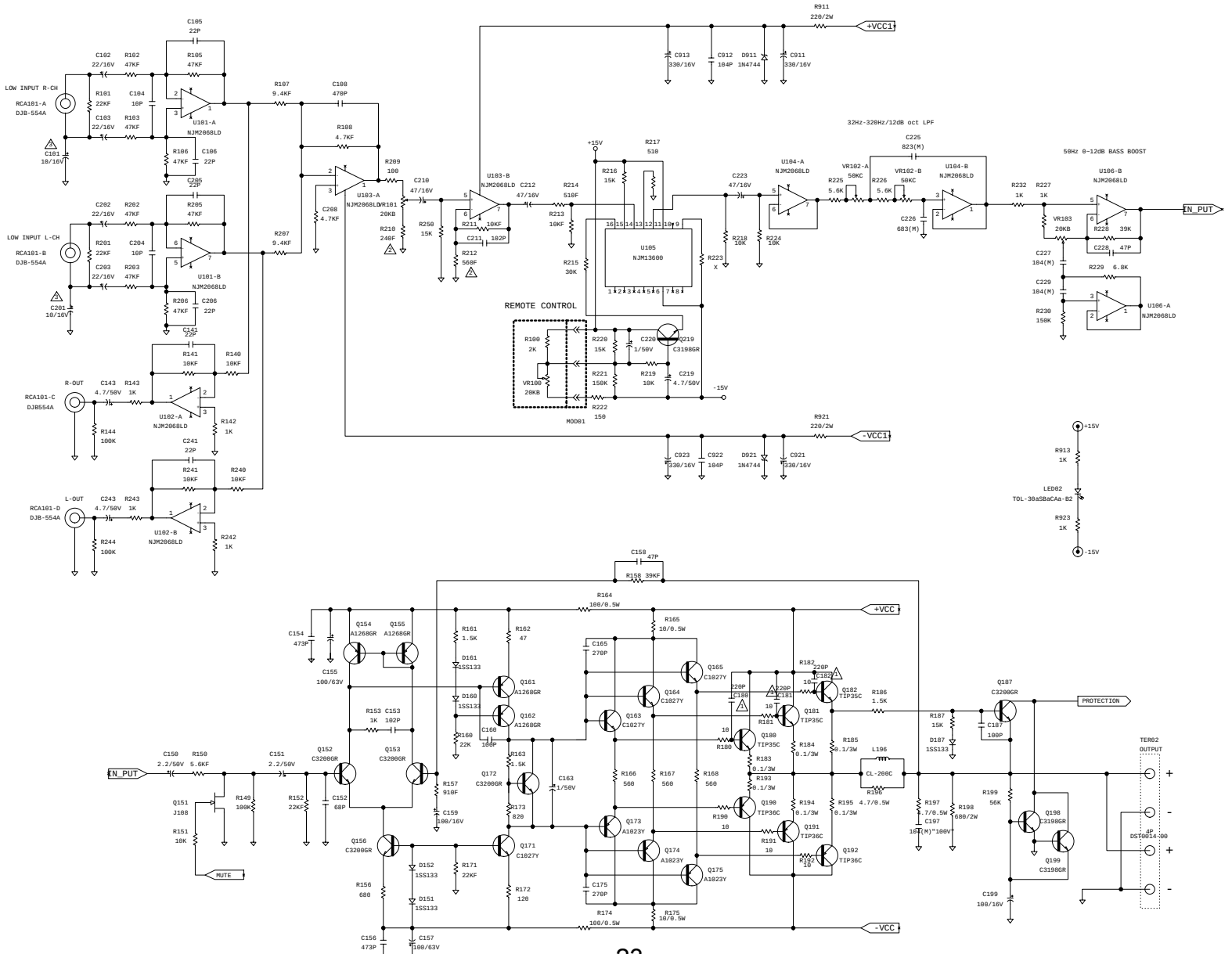
GTO 301.1 Page1 Schematic



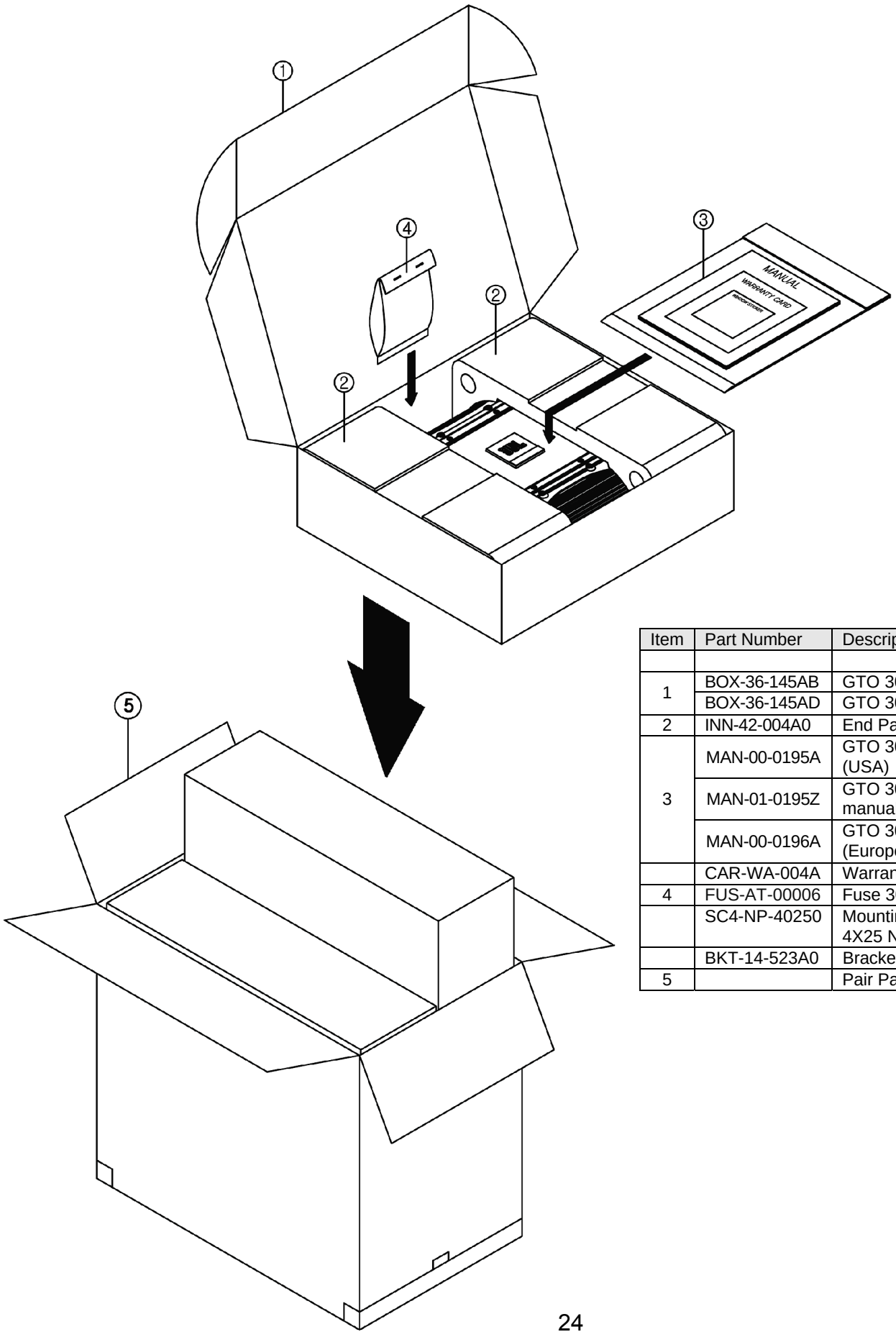
GTO 301.1 Page2 Schematic




Q01 A1023Y
R03 10/0.5W
C06 10/16V
R01 4.7K
L03 CL-300
FH01 30A
D01 1N5404
DC12V+
REM
REMOTE
GND
TER01 DST0613-00
R63 430K
R02 4.7K
R04 56K
D02 1N4004
Q02 C3198GR
C801 473P
R05 8.2K
D51 FR154
D52 FR154
D53 FR154
D54 FR154
+VCC1
-VCC1
C57 47/50V
C6 47/50V
R62 4.7KF
R60 10.5KF
C60 104P
C14 47/16V
Q55 TQP50N06
Q54 TQP50N06
Q53 TQP50N06
R55 47
R54 47
R53 47
D03 1SS133
R51 220/0.5W
Q33 A1266GR
R52 1K
Q23 A1266GR
R42 1K
R41 220/0.5W
D04 1SS133
Q43 TQP50N06
Q44 TQP50N06
Q45 TQP50N06
R43 47
R44 47
R45 47
C05 2200/25V"WL"
C84 2200/25V"WL"
C03 104P
T01 37PHI
5T:17T:10T
(0.7X9:0.7X4:0.7X1)
D41 YG225D2
D42 YG225D2
D80 1SS133
D81 1SS133
L01 CL-500
L02 CL-500
C51 470/63V
C61 470/63V
C52 3300/63V"HC"
C62 3300/63V"HC"
C08 222(M)"100V"
R30 100/2W
C53 473P
C63 473P
+VCC
-VCC
MUTE
R80 220K
R81 10K
C82 22P
Q82 J108
C83 10/50V
R11 4.7K
R13 10K
R15 10
U01 TL494CN
1 2 3 4 5 6 7 8
16 15 14 13 12 11 10 9
Q12 A1266GR
Q11 A1266GR
R12 3.9K
C11 100/16V
R14 10K
C12 100/16V
R21 24K
TH01 50KTH
R25 68K
R90 47K
C21 102(M)
R22 24K
C13 100/16V
PROTECTION
Q90 C3198GR
R92 1K
LED01 HNRD-3401L
R91 22K
D11 1SS133
Q22 A1268GR
Q21 C3198BL
R31 1K
R32 22K
R34 15K
C16 47/25V
R35 15K
PROTECTION
C22 104P
R16 910
C15 10/25V
R33 33K
R61 10K
C33 473P
W1
C32 105(M)"TL"
C31 105(M)"TL"
C35 104(M)
C36 105(M)"TL"
C37 102P
W02 #2260m/m
W03 #2260m/m
W04 #2260m/m


LOW INPUT R-CH
LOW INPUT L-CH
RCA101-A
DJB-554A
RCA101-B
DJB-554A
U101-A NJM2068LD
U101-B NJM2068LD
U103-A NJM2068LD
U103-B NJM2068LD
U104-A NJM2068LD
U104-B NJM2068LD
U106-A NJM2068LD
U106-B NJM2068LD
U105 NJM13600
+VCC1
-VCC1
+15V
-15V
32Hz-320Hz/12dB oct LPF
50Hz 0-12dB BASS BOOST
REMOTE CONTROL
MOD01
R-OUT
L-OUT
RCA101-C DJB554A
RCA101-D DJB-554A
U102-A NJM2068LD
U102-B NJM2068LD
LED02 TOL-30aSBaCAa-B2
EN_PUT
MUTE
PROTECTION
TER02 OUTPUT
DST0814-00
+VCC
-VCC

Packaging Exploded View



Item	Part Number	Description	Qty
1	BOX-36-145AB	GTO 301.1 Gift box carton	1
	BOX-36-145AD	GTO 301.1II Gift box carton	1
2	INN-42-004A0	End Pads	2
3	MAN-00-0195A	GTO 301.1 Owner's manual (USA)	1
	MAN-01-0195Z	GTO 301.1II Owner's manual (USA)	1
	MAN-00-0196A	GTO 301.1 Owner's manual (Europe)	1
	CAR-WA-004A	Warranty Card	1
4	FUS-AT-00006	Fuse 30A	2
	SC4-NP-40250	Mounting screw STT1 PH 4X25 NI	4
	BKT-14-523A0	Bracket lamp SK-5/BK	4
5		Pair Pack carton	1